

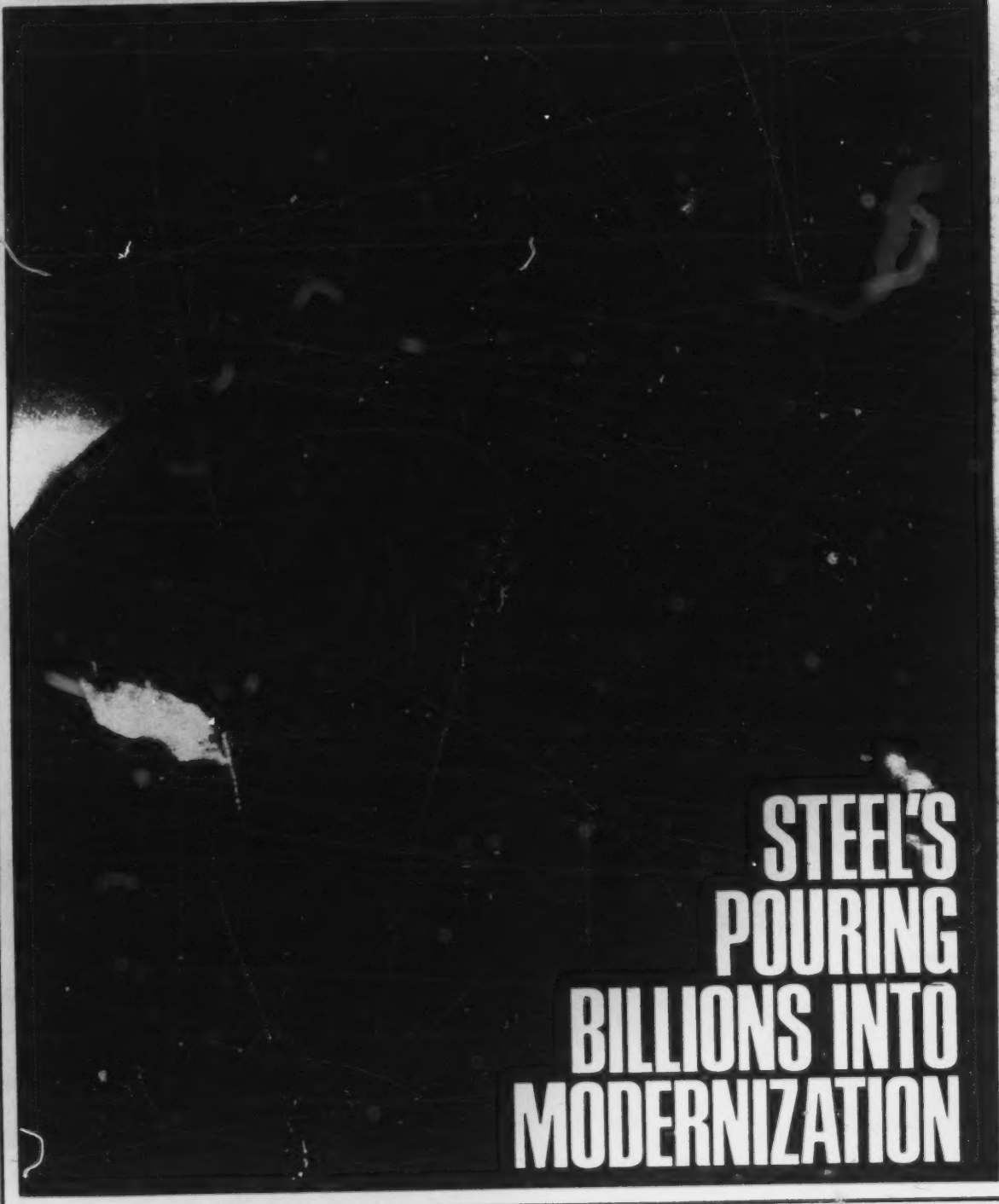
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IRON AGE

THE MANAGEMENT MAGAZINE FOR METAL PRODUCERS

A Fairchild Business Publication

SEPTEMBER 1988

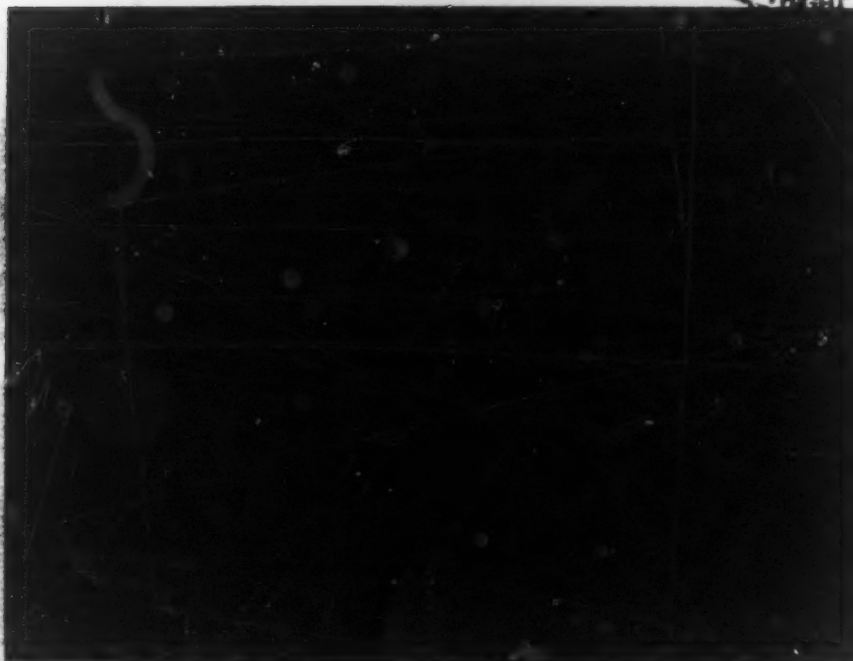


**STEEL'S
POURING
BILLIONS INTO
MODERNIZATION**

...PLUS A PREVIEW OF THE AISE CONFERENCE

IRON AGE

SEPTEMBER 1988



A ladle of molten iron is charged into the BOF at Bethlehem Steel's Burns Harbor plant.

Steel's Pouring Billions Into Modernization

Spending on capital projects has risen to a \$6 billion annual rate. Quality and efficiency are key interests, but steelmakers are also spending to maintain production. p. 21

MARKET INDICATORS

Durable orders and the export market are the good signs. — P.5

EDITORIAL

Between a rock and a hot place. — P.8

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The EPA eases its EAF dust disposal rules. — P.13

AISE

A wide array of topics are slated for this year's conference. — P.44

CITISTEEL

The Chinese are raising a U.S. steel mill from its ashes. — P.48

INDIRECT IMPORTS

The weaker dollar has slowed — but not stopped — the growth. — P.52

EARNINGS

Firm prices tone up the metals industry's bottom line. — P.56

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Shipments are expected to top 80 million tons in 1988. — P.72

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Some of steel's former suppliers are sorely missed. — P.84

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INDIRECT STEEL IMPORTS ARE DOWN, BUT NOT OUT

The declining dollar has helped to boost exports and increase the competitiveness of U.S. steel producers, but foreign made goods are still flowing into the U.S.

Three years ago, the skyrocketing value of the dollar in world currency markets brought to light a previously unknown problem for the U.S. steel industry.

Indirect steel imports, in the form of manufactured goods containing steel, rose dangerously and threatened to erode the steel and metal manufacturing base in this country.

Now, despite the continued growth of both direct and indirect steel imports in the U.S., the rapid widening of the indirect steel trade deficit is slowing down.

"We've blunted the acceleration of the indirect steel trade deficit," said Bob Wendt, manager of economic studies at Bethlehem Steel Corp.

While the problem of indirect steel imports will never go away, there is evidence of a downturn in the trend. "The good news is that there will not be too much growth in the next few years," Mr. Wendt said.

Indirect steel imports, defined as steel entering a country in the form of manufactured goods, nearly doubled in the U.S. between 1984 and 1986, rising to 17.5 million tons in the form of imported automobiles, machinery and other steel consuming products.

The net trade deficit for indirect steel trade in 1986 totaled a 9.3 million tons, compared with 7.4 million tons in 1985 and 5.0 million tons in 1984, according to figures provided by the American Iron and Steel Institute (AISI).

Yet, despite the growing numbers, a new-found strength in U.S. steel-containing goods, an indirect result of the lower value of the dollar, has helped to boost exports, increased the competitiveness of U.S. manufacturers and stabilized

Steel In Foreign-Made Autos and Machinery

In Millions of Net Tons



the indirect trade deficit, Mr. Wendt said.

The 1987 indirect steel trade figures, which are not yet available, should show exports increasing to 8.3 million tons from 8.2 million tons in 1986, and indirect imports decreasing to 17.1 million tons, Mr. Wendt estimated. Likewise, the indirect steel trade deficit should improve, narrowing to 8.8 million tons, he said.

Mr. Wendt said that 1988 will demonstrate even more improvement. In a study done in early June, he estimated that exports will reach 9.0 million tons, indirect imports will drop to 17.0 million tons and the net deficit will fall to 8.0 million tons. But with trade statistics in for almost two thirds of the year, he said that results for 1987 are now expected to better

even those figures.

The domestic steel industry's recognition of the problem of indirect steel imports can be traced back to 1984, when the U.S. trade balance for machinery and transportation equipment shifted from a surplus to a deficit, according to a U.S. Commerce Department official.

With the high dollar attracting interest in offshore manufacturing and less expensive imported goods, steel imports, both direct and indirect, soared.

Indirect steel trade was not a major issue for many years, because it did not have a great effect on total steel demand, according to Mr. Wendt. The U.S. traditionally exported large amounts of heavy machinery, which balanced increasing volumes of imported au-

INDIRECT TRADE

Indirect Steel Trade In 1986

	Value in Billions of Dollars			Volume in Millions of Net Tons		
	Imports	Exports	Net Trade	Imports	Exports	Net Trade
Automotive	\$70.0	\$19.0	(\$51.0)	8.7	2.9	(5.8)
Machinery	24.0	20.0	(4.0)	5.3	3.8	(1.5)
Other Durables	6.0	1.0	(5.0)	0.6	0.2	(0.4)
Construction	4.0	3.0	(1.0)	1.1	0.7	(0.4)
Appliances	3.0	1.0	(2.0)	0.6	0.1	(0.5)
Other	9.0	20.0	(11.0)	1.2	0.5	(0.7)
Total	\$116.0	64.0	(52.0)	17.5	8.2	(9.3)

Source: Bethlehem Steel Corp.

tomobile products. This balance lasted through much of the 1970s.

The new dimension of the "indirect" trade deficit was discovered after industry analysts realized that the conventional measurements of the steel market were inadequate for gauging actual steel demand.

Keeping track of it helps to explain why the U.S. industry failed to participate in the economic recovery from 1983 to 1986 and why steel shipments today are below levels they should be, considering the strength of the overall U.S. economy, Mr. Wendt said.

However, current tightness in the steel market is evidence that exports are increasing and the deficit should be decreasing, said a Commerce spokesman.

In addition, steel-intensive industries such as the machine tool industry have begun to replace imports with production of their own, indicating the beginning of a new competitive trend, the Commerce official said.

The greatest impact of the low dollar, which dropped in value after 1986, has been the boosting of the competitiveness of U.S. manufacturers of technically sophisticated products, especially where the competition is the European Community (EC) or Japan, according to Mr. Wendt.

"There is a new class of manufacturers in the U.S. who are seeing the benefit of the lower dollar

against the currencies of the EC nations and Japan," he said. The dollar's lower value against the high value of such countries as West Germany and Japan has particularly aided U.S. exports of construction and other heavy machinery.

Shift in Production

Much of the production of steel-containing goods is shifting away in general from Japan, Canada and Europe, and moving to countries whose currencies are more closely linked to the dollar, such as Korea, Taiwan, Mexico and Brazil. Thus, these countries also benefit from the low dollar, which forces production away from the United States' major steel-producing competitors.

Mr. Wendt warned that despite the current advantage the U.S. enjoys over Japanese and European steel exports, these other, newer sources of production, will keep pressure on the U.S. by providing import competition.

"While the state of the battle with the EC and Japan looks like we will be able to hold our own, and even trim the indirect deficit—other competitors in the developing world continue to broaden their steel-using manufacturing base, a development that will keep pressure on the U.S. for the foreseeable future," Mr. Wendt said at a conference in June on steel industry strategies.

Mr. Wendt also said the loss of traditional export customers such as Latin America and the Middle East is a major concern for the U.S. industry as it expands its steel-containing products exports. Explaining that those areas used to be the backbone of the U.S. export market in the 1970s, he said that economic reforms in both regions will have to be affected before those markets can be re-established.

A forecast for the long-term economic picture, Mr. Wendt suggested, is one of the shifting of steel-containing goods from the EC, Japan and Canada towards developing countries. U.S. exports should continue to rise, but not substantially in the next five years, because of the economic conditions of traditional export markets, and the increasing production capabilities of those countries which will keep alive competition for the U.S.

While the problem of indirect steel imports has improved, and is in fact much better than two years ago, a balance between imports and exports is not expected in the near future, Mr. Wendt said. However, major trade deficit growth in the next few years will be held to a steady rate, he predicted.

"Total imports will probably increase over the next five years, but nowhere near the pace of the last five," he said.

*By Elizabeth Chute
Fairchild News Service*

2ND QUARTER EARNINGS

FIRM PRICES; WIDER MARGINS

Domestic steelmakers shipped close to 22 million tons in the quarter and enjoyed firm prices, while nonferrous producers toted up higher gains in both revenues and profits.

Steel earnings ranged from good to spectacular in the second quarter of 1988.

In the spectacular class was the 13.3 pct return on sales of Inland Steel Industries, Inc. Inland's operating profit came to an equally impressive \$79 a ton.

In the specialty field, Allegheny Ludlum Corp. earned over 8 pct on sales. Among the mini-mills, the 19.1 pct profit margin of New Jersey Steel Corp. stood out.

The early returns showed only three out of 14 mills earning less than 5 pct on sales in the second quarter. Shipping close to 22 million tons in the quarter, steel companies enjoyed firm prices and the benefits of their long cost-cutting period.

There is every indication business will be just about as good in the second half. The new prices on contracts with auto companies will take effect. There may be a slight seasonal dip in shipments, but nothing like the sharp decline that had been expected. Inland Steel is now predicting that the domestic industry's shipments will total 80 million tons this year. The USX estimate is up to 81 million or 82 million tons.

The USX net profit of \$213 million came to 5 pct of sales. This was respectable enough, but it would have been a lot better if operating earnings of the oil sector had not declined more than \$100 million. The operating profit on steel was \$223 million. That came to nearly \$70 a ton.

David M. Roderick, USX chairman, was asked if he had any regrets about diversifying into the energy business. "Oil carried us from 1982 through 1987," he said. "This is the first time our earnings from steel will be greater than from energy."

Despite the steel revival, USX hasn't closed the door on divesting at least part of its USS division. "We have been asked if we would consider selling up to 20 pct of USS," said Mr. Roderick. "We would consider that providing we received full value."

Like USX, Armco, Inc., was hurt by diversification. Armco's operat-

Wheeling-Pittsburgh noted that its bankrupt condition reduced both interest and pension costs.

Nevertheless, Wheeling-Pittsburgh's performance has apparently impressed investors. The company's stock has moved up sharply in the last few months. Officials said they had no knowledge of any takeover activity.

BIG STEEL'S SECOND QUARTER OPERATING PROFITS

	1988			1987		
	Operating Profit in Millions of \$	Shipments in Millions of Tons	Income Per Ton in \$	Operating Profit in Millions of \$	Shipments in Millions of Tons	Income Per Ton in \$
USX	\$223.0	3.2	\$69.38	\$98.0	2.3	\$42.61
BETHLEHEM	106.0	2.6	\$40.77	47.6	2.3	\$20.70
LTV	184.5	2.9	\$63.62	88.0	2.8	\$31.43
INLAND	103.5	1.3	\$79.62	18.0	1.1	\$17.00
ARMCO	58.1	1.1	\$52.82	27.0	1.1	\$24.55
NATIONAL	26.9	1.3	\$20.69	24.0	1.2	\$20.00

ing profits on both carbon and specialty steels were up from the second quarter of 1987, but the gains were partly offset by a pre-tax charge of \$15 million on financial services.

National Steel Corp. reported a modest rise in earnings. With its deep involvement in automotive, National figures to benefit from the prices applied to auto sheet in the new model year. The continued strength of the auto market is another plus factor.

"Overall demand... looks strong in the second half of the year," said Howard M. Love, National's chairman. "Automotive companies recently increased their schedules and auto, truck, and van inventories appear to be low."

Wheeling-Pittsburgh Steel Corp. had a net profit of more than \$62 million in the second quarter. That came to 21.3 pct of sales

Weirton Steel Corp.'s operating income rose from \$41 million in the second quarter of 1987 to \$50 million in the second quarter of 1988. However, an increase of profit sharing to 50 pct of after-tax income reduced the amount available to the company. Execution of Weirton's \$500 million capital plan hinges on modifying the profit-sharing and stock-purchase agreements.

The strong showing of New Jersey Steel was attributed partly to savings from an electric furnace equipped for eccentric bottom tapping.

"We have achieved the cost reductions of about \$15 per ton we had anticipated from the new equipment and we are operating at approximately the half-million ton-per-year level of steelmaking (Sales and earnings table appears on p. 58; story continues on p. 61.)

EARNINGS

STEEL: PRICE STRENGTH FIRMS UP THE BOTTOM LINE

SECOND QUARTER PROFIT REPORT - 1988 (In Millions of Dollars)

	EARNINGS				SALES		
	E/S	2nd Q 1988	2nd Q 1987	Pct Change	2nd Q 1988	2nd Q 1987	Pct Change
USX	5.0	\$213.0	\$165.0	+29.1	\$4,269.0	\$3,954.0	+8.0
LTV	7.6	157.6	122.7	+28.4	2,063.8	1,933.9	+6.7
BETHLEHEM	11.0	150.5	46.8	+221.6	1,369.0	1,128.0	+21.4
ARMCO	4.9	40.4	36.2	+11.6	826.7	719.5	+14.9
NATIONAL	3.0	19.6	18.4	+6.5	659.3	615.7	+7.1
INLAND	13.3	86.7	4.7	+1,745.0	650.5	525.2	+23.9
TOTAL	6.8	667.3	393.8	+69.6	9,838.3	8,876.3	+10.8
TIMKEN	4.5	17.7	6.6	+168.2	390.5	302.7	+29.0
WEIRTON	6.3	21.8	23.8	-8.4	348.7	322.0	+8.3
ALLEG. LUD.	8.3	26.3	14.6	+80.1	318.2	217.4	+46.4
WHEEL-PGH	21.3	62.1	39.3	+58.0	291.9	258.8	+12.8
NUCOR	6.9	18.9	13.9	+36.0	272.9	209.5	+30.3
CYCLOPS	3.2	8.1	-	-	253.2	-	-
CO-STEEL	7.4	18.0	10.6	+69.8	244.0	204.3	+19.4
CARPENTER	6.5	10.9	2.2	+395.5	166.8	127.2	+31.1
LUKENS	5.6	8.6	6.1	+41.0	153.0	127.6	+19.9
ACME	5.5	5.8	4.7	+23.4	106.3	85.3	+24.6
BIRMINGHAM	8.8	8.5	4.1	+107.3	96.2	72.3	+33.1
CF&I	5.3	4.3	(1.5)	-	80.9	59.8	+35.3
CSC	7.8	6.0	3.1	+93.6	77.1	56.0	+37.7
LACLEDE	5.4	4.1	1.2	+241.7	75.8	67.2	+12.8
NS GROUP	10.5	7.1	1.4	+408.1	67.3	45.6	+47.6
EASTMET	6.0	2.8	0.7	+300.0	46.5	30.1	+54.5
NEW JERSEY*	19.1	7.9	4.4	+79.6	41.2	31.5	+30.8

() Indicates a loss *Quarter ended May 31

NONFERROUS: CLIMBING HIGHER AND HIGHER

SECOND QUARTER PROFIT REPORT - 1988 (In Millions of Dollars)

	EARNINGS				SALES		
	E/S	2nd Q 1988	2nd Q 1987	Pct Change	2nd Q 1988	2nd Q 1987	Pct Change
ALCAN	11.0	\$243.0	\$104.0	+133.7	\$2,218.0	\$1,716.0	+29.3
ALCOA	9.4	237.6	(91.2)	-	2,519.3	2,013.0	+25.2
AMAX	23.1	237.9	35.5	+570.0	1,030.8	834.3	+23.6
ASARCO	9.6	42.3	2.9	+1,359.0	442.7	329.6	+34.3
BATTLE MOUNT.	44.5	16.1	9.3	+73.1	36.2	26.9	+34.6
BRUSH-WELLMAN	9.2	8.2	6.8	+20.6	89.5	75.7	+18.3
COMINCO	11.5	48.3	38.5	+25.5	419.0	362.0	+15.7
CYPRUS MINERALS	13.2	42.9	7.0	+513.0	324.2	179.2	+80.9
FALCONBRIDGE*	18.5	95.0	(17.0)	-	514.0	319.0	+61.1
INCO	22.9	190.2	13.8	+1,278.0	830.8	422.1	+96.8
KAISERTECH	9.4	51.6	(389.1)	-	550.3	534.1	+3.0
MAGMA COPPER	8.6	11.7	7.5	+56.0	136.2	97.8	+39.3
NEWMONT	17.2	19.4	290.7	-	113.0	89.2	+26.7
OLIN	5.0	29.0	22.0	+31.8	578.0	486.0	+18.9
PHelps DODGE	16.8	92.8	15.6	+494.9	553.3	355.3	+55.7
PINE POINT	40.1	15.2	6.4	+137.5	37.9	24.5	+54.7
REYNOLDS	9.1	134.8	51.1	+163.8	1,476.2	1,070.9	+37.9
RIO ALGOM*	6.6	33.7	22.0	+53.2	511.0	395.1	+29.3

() Indicates a loss * Canadian funds

capacity," said Robert J. Pasquarelli, president of New Jersey Steel.

Citing brisk construction activity and a tight supply of rebars, Mr. Pasquarelli predicted full production for the rest of the year.

The plate business of Lukens, Inc., is benefitting from the strength of heavy industrial construction.

"The chemical, construction equipment, pulp and paper, bridge fabrication, and defense markets are all good," said W.R. Wilson, chairman of Lukens. The company's earnings were up 40 pct from the second quarter of 1987.

Nonferrous

If there's a dull spot in the nonferrous metals market, the luster of the second quarter's results must be outshining it.

Across the board, industry members in aluminum, copper, nickel and other metals posted double-digit gains in sales and sharply higher results in earnings for the second quarter.

Increased demand, and the industry's willingness to fulfill it, offers a partial explanation. Firmer prices, particularly in the lower end of product range, have provided considerable help.

In aluminum, as an example, it's usually assumed that fabricated aluminum products serves up the butter and the primary market provides the bread. But the continuing strength of the ingot market this year seems to be showing that semifinished products can fatten the bottom line as strongly as the higher-priced spreads.

Alcan Aluminium, Ltd., which relies more heavily on the primary market than its competitors, reported that its second quarter net income soared to a record \$243 million. That figure was up 39 pct from the record tally in the first quarter of this year and more than double the \$104 million reported for the second quarter of 1987.

"Led by continuing strength in the primary market," the big Canadian aluminum producer noted in a statement, "average realizations on the sales of both primary

and fabricated products showed further improvement over the preceding quarter and were substantially higher than in the same period of 1987."

Alcan's shipments of ingot products rose nearly 13 pct compared to the second quarter of 1987—213,000 tons versus 189,000 tons. Fabricated products were up a marginal 3 pct—382,000 tons compared 372,000 tons—in the same period.

Alcan wasn't alone in reaching new heights from the lower end of the aluminum market. Kaisertech,

Nickel prices showed more stability in the second quarter, Inco noted, but demand for the metal remains strong.

Ltd. also reversed its year-earlier results and posted profits of \$51.6 million. In the second quarter of 1987, the company recorded a \$389.1 million loss, much of it attributed to costs for restructuring Kaiser Aluminum & Chemical Corp., its operating subsidiary.

The West Coast-based aluminum producer nearly doubled its shipments of ingot—from 33,763 tons in the second quarter of 1987 to 64,022 tons in the same period of this year.

Elsewhere, Reynolds Metals Co. posted record sales and profits in the second quarter. Net income for the Richmond, Va.-based aluminum producer rose to \$134.8 million, a 164 pct gain over the \$51.1 million in profits reported for the same period of last year. Revenues totaled almost \$1.5 billion, up 38 pct from the \$1.1 billion total for the second quarter of 1987.

William O. Bourke, Reynolds chairman and CEO, pointed to unprecedented worldwide demand for aluminum, strong price improvement for most aluminum products, higher revenues from

the company's gold mining operations, and continued growth in Reynolds' packaging, can and consumer products businesses as explanations for the company's sharp gain in profits.

"The fundamentals in our business are very strong," he added, and predicted that the high rate of activity in the aluminum business would continue through the second half of this year and into 1989.

The Aluminum Co. of America (Alcoa) also reported sharply higher earnings for the second quarter—up to \$237.6 million compared to a loss of \$91.2 million in the same period of 1987. The big aluminum producer cited higher prices for a variety of products and increased shipments during the period as the reasons for the gains.

Sales totaled more than \$2.5 billion during the period, a gain of 25 pct compared to the slightly more than \$2.0 billion total for the second quarter of last year.

The copper producers continued their dramatic rebound in the second quarter, helped in large part by the strength of the red metal's price. Phelps Dodge Corp., the nation's largest copper producer, posted a 56 pct gain in sales over the total from the same period of the previous year—\$553.3 million compared to \$355.3 million. Earnings were up almost 500 pct from \$15.6 million for the second quarter of 1987 to \$92.8 million.

Asarco, Inc., posted a spectacular 15-fold gain in earnings—to \$42.3 million from \$2.9 million in the second quarter of 1987.

Meanwhile, Inco, Ltd., reported record second quarter earnings of \$190.2 million compared to \$13.8 million in the same period of 1987. The company attributed the gain to higher nickel prices. Shipments declined slightly from the level reached in the first quarter when customers bought in anticipation of higher prices and possible supply interruptions.

Nickel prices showed more stability in the second quarter, the company noted, but demand remains strong.

*By George J. McManus
and Michael Marley*

MATERIALS PRICES

PRICE & PRODUCTION DATA

(Effective August 1, 1988)

Steel production by districts, thousands of tons
(000 omitted)

	Last Week	Two Weeks Ago	Month Ago	Year Ago
Northeast Coast	271	272	281	253
Pittsburgh	197	193	200	186
Youngstown	123	122	120	105
Lake Erie	169	153	152	130
Detroit	157	143	144	121
Chicago	531	528	446	435
Midwest	195	179	139	197
Southern	224	219	208	190
Western	98	96	94	52
U.S. Production	1,965	1,905	1,834	1,669

Source: American Iron & Steel Institute

Lake Superior Ore Prices

51-50% Fe Natural delivered lower Lake ports unless otherwise stated. Rail transportation, handling and unloading may be charged to buyer. Coarse ore 80% premium.

Pellets (per iron unit natural)	gross-ton 37.344*
Pellets (per iron unit natural)	gross-ton 46.84-59.4**
Pellets (per iron unit natural)	gross-ton 72.45-86.9***
Mesabi, regular-unscreened	gross-ton 32.53
Mesabi, non-bessemer	gross-ton 30.03-31.53

*37.344—U.S. Steel; 5.20-87 FOB Mount Iron; 11.40-84—Inland Steel Mining; 1.1-87 58.00—Munroe Services; 8.13-85 59.40—Pikands Mather; 8.1-85 delivered hold of vessel upper Lake ports; **72.45—Cleveland Cliffs; 12.10-86 Uglebay Norton; 3.1-87 86.90—Hanna Mining; 2.26-82

STEEL PRODUCTION, COMPOSITE PRICES

(Effective August 1, 1988)

U.S. Steel Production

	Last Week	Two Weeks Ago	To Date 1988	To Date 1987
Net tons, in thousands	1,965	1,905	58,547	48,626
Capacity Utilization Rate	92.1	89.3	90.2	75.0

Composite Prices

	This Week	Week Ago	Month Ago	Year Ago
Finished Steel Base*	24.378	24.378	24.378	24.804
(c/lb.—eff. 7/1/88)				
Pig Iron** (Net ton=2000 lbs.)	\$213.00	\$213.00	\$213.00	\$213.00
Scrap No. 1 hvy***	\$116.50	\$116.50	\$115.17	\$82.83
(Gross ton=2240 lbs.)				
No. 2 bundles	\$80.50	\$76.83	\$76.83	\$53.50

Scrap Comparison (Gross Ton)

No. 1 steel, Pittsburgh	\$121.50	\$121.50	\$121.50	\$89.50
No. 1 steel, Philadelphia	108.50	108.50	104.50	74.50
No. 1 steel, Chicago	119.50	119.50	119.50	84.50
No. 1 bundles, Detroit	142.50	132.50	128.50	95.50
Low Phos., Youngstown	132.50	130.50	130.50	92.50
No. 1 mach'y cast., Pgh.	98.50	98.50	98.50	87.50
No. 1 mach'y cast., Phila.	115.50	115.50	111.50	93.50
No. 1 mach'y cast., Chi.	134.50	128.50	128.50	103.50

*Finished Steel Composite: Weighted index of steel bars, structurals, plates, rails, hot rolled and cold rolled sheets.

**Pig Iron Composite: Based on average prices for basic and foundry pig iron at representative producing points within the U.S.

***Steel Scrap Composite: Average of No. 1 hvy. melting steel scrap and No. 2 bundles delivered to consumers at Pittsburgh, Philadelphia and Chicago.

NONFERROUS PRICES

Effective August 1, 1988. Prices obtained in trade based on representative tonnages per gross ton delivered to consumer unless otherwise stated.

Primary Metal Prices

(cents per lb.)	current price	last price	date of change
Aluminum (LME)	108.00	113.00	8/1/88
Copper (C)	99.00	106.00	7/28/88
Lead	36.00	34.00	5/23/88
Magnesium Ingot	153.00	148.00	12/9/85
Nickel (LME)	620.00	640.00	8/1/88
Zinc	66.00	63.00	8/10/88

ALUMINUM: Avg. for last week & previous week. COPPER: (C) Cathode. LEAD: common grade. MAGNESIUM: 99.8% pig delivered. NICKEL: Avg. for last week & previous week. ZINC: high grade.

Antimony, American Laredo, Texas	\$2.00
Beryllium-aluminum 5% Be per lb. contained Be	\$260.00
Beryllium-copper strip No. 25, per lb. Be	\$8.00
Beryllium powder SP200F, per lb.	\$244.00
Cadmium, ton lots	\$1.50
Calcium, ton lots, crown	\$3.92
Chromium, 99.5% electro	\$4.62
Cobalt, 99% cathode	\$12.50
Gold, per tray oz	\$434.60
Indium, per tray oz	\$10.10
Iridium, per tray oz	\$305.00
Magnesium sticks, 10,000 lbs.	\$2.12
Mercury, per 76 lb., f.o.b. N.Y.	\$348.00
Molybdenum, lb. tech. moly oxides, 20 lb. MO can	\$3.45
Palladium, per tray oz	\$125.00
Platinum, per tray oz	\$527.00

Rhodium, per tray oz	\$1,200.00
Silver ingots, per tray oz	\$6.81
Titanium sponge, melt grade	\$4.00
Tungsten powder, hyd. red.	\$9.53-9.85
Vanadium	\$6.00
Zirconium sponge	\$11.20-17.00

(Per lb. unless otherwise noted)

Straits Tin Price

U.S. (cents per lb. EX-SMELTER, based on daily market in Kuala Lumpur in Malaysian dollars per kilo)	
July 25—Holiday	July 28—388.00
July 26—327.00	July 29—328.00
July 27—326.00	

Scrap Prices

Brass Mill Scrap

(Cents per lb., over 20,000 lbs. add 1¢ per lb.)

	Solids	Turnings
Copper	84	80
Yellow brass	73	72
Red brass	67½	63½
Comm. bronze	69½	64½
Mang. bronze	49½	48½
Free cutting rod ends	64½	63½

Custom Smelters Scrap

(Cents per lb., carload lots del. refinery)

No. 1 copper wire	84
No. 2 copper wire	72
Light copper	67

Ingot Makers Scrap

(Cents per lb., carload lots del. refinery)

No. 1 copper wire	75
No. 2 copper wire	66
Light copper	59
No. 1 composition	58
No. 1 comp. turnings	58
Hvy. yellow brass solids	42
Hvy. yellow brass turnings	36
Radiators	37

Aluminum		
New mixed clips, unalloyed	65	— 66
Old sheet, unalloyed	54	— 55
Old cast, unalloyed	56	— 57
Clean dry borings	45	— 46

Dealers' Scrap

(Dealers' buying price f.o.b. New York in cents per pound)

Aluminum

Segregated clippings	57	— 58
Mixed L.C. clips	56	— 57
Old sheets and cast	47	— 48
Borings and turnings	39	— 40
Duraluminum clippings	48	— 49

Copper and Brass

No. 1 copper wire	70	— 72
No. 2 copper wire	60	— 61
Light copper	54	— 55
Radiators	38	— 39
No. 1 composition	58	— 59
No. 1 composition turnings	54	— 55
Cocks and faucets	48	— 49
Clean heavy yellow brass	43	— 44
Brass pipe	52	— 53
New soft brass clippings	64	— 65

Lead

Heavy soft lead	14	— 15
Whole batteries	2	— 3
Type metal	22	— 23
Electrotype	14	— 15

Nickel

Nickel solids	450	— 460
Nickel rod ends	443	— 453
Nickel sheets, clips	433	— 443
Nickel turnings	259	— 279

Zinc

New zinc clippings	19	— 20
Old diecast zinc	15	— 16

MATERIALS PRICES

EFFECTIVE AUGUST 1, 1988

Effective August 1, 1988. Prices obtained in trade based on representative tonnages per gross ton delivered to consumer, unless otherwise stated. Prices are the opinions of Iron Age editors and correspondents based on contact with dealers, brokers, generators and users in the industry on the effective date listed above.

Ferrous Scrap Prices

Pittsburgh

No. 1 hvy. melting	\$ 121.00 to \$ 122.00
No. 2 hvy. melting	111.00 to 112.00
No. 1 dealer bundles	161.00 to 162.00
No. 1 factory bundles (auto)	161.00 to 162.00
No. 2 bundles	69.00 to 70.00
No. 1 busheling	59.00 to 60.00
Machine shop turnings	44.00 to 45.00
Shoveling turnings	84.00 to 85.00
Cast iron borings	83.00 to 84.00
Low phos. punchings plate	164.00 to 165.00
Heavy turnings	111.00 to 112.00
No. 1 RR hvy. melting	131.00 to 132.00
Rails, 2 ft. and under	173.00 to 174.00
Scrap rails, random length	150.00 to 151.00
RR specialties	162.00 to 163.00
No. 1 machinery cast	98.00 to 99.00
Cupola cast	90.00 to 91.00
Heavy breakable cast	40.00 to 41.00
Stainless	
18-8 bundles and solids	1340.00 to 1350.00
18-8 turnings	1240.00 to 1250.00

Chicago

No. 1 hvy. melting	\$ 119.00 to \$ 120.00
No. 2 hvy. melting	116.00 to 117.00
No. 1 dealer bundles	154.00 to 155.00
No. 1 factory bundles	152.00 to 153.00
No. 2 dealer bundles	69.00 to 70.00
No. 1 busheling	145.00 to 146.00
Shredder scrap	142.00 to 143.00
Machine shop turnings	56.00 to 57.00
Mixed borings and turnings	48.00 to 49.00
Shoveling turnings	75.00 to 76.00
Cast iron borings	77.00 to 78.00
Low phos. forge scrap	87.00 to 88.00
Low phos. punchings plate	
1 1/4 in. and heavier	183.00 to 184.00
Low phos. 2 ft. and under	176.00 to 177.00
No. 1 RR hvy. melting	134.00 to 135.00
Scrap rails, random length	156.00 to 157.00
Roller rails	172.00 to 173.00
Rails, 2 ft. and under	179.00 to 180.00
RR couplers and knuckles	132.00 to 134.00
RR car axles	189.00 to 190.00
No. 1 machinery cast	134.00 to 135.00
Cupola cast	119.00 to 120.00
Stove plate	135.00 to 136.00
Steel car wheels	159.00 to 160.00
Stainless	
18-8 bundles and solids	1300.00 to 1310.00
18-8 turnings	1190.00 to 1200.00
430 bundles and solids	270.00 to 280.00
430 turnings	185.00 to 195.00

Philadelphia

No. 1 hvy. melting	\$ 107.00 to \$ 110.00
No. 2 hvy. melting	97.00 to 100.00
No. 1 dealer bundles	147.00 to 150.00
No. 2 dealer bundles	77.00 to 80.00
No. 1 busheling	147.00 to 150.00
Shredder scrap	142.00 to 145.00
Machine shop turnings	32.00 to 35.00
Mixed borings and turnings	32.00 to 35.00
Shoveling turnings	53.00 to 56.00
Low phos. 3 ft. and under	137.00 to 140.00
Low phos. 2 ft. punchings	147.00 to 150.00
Electric furnace bundles	153.00 to 156.00
RR specialties	157.00 to 160.00
Rails, 2 ft. and under	150.00 to 153.00
Cupola cast	104.00 to 107.00
Heavy breakable cast	87.00 to 90.00
No. 1 machinery cast	114.00 to 117.00

Detroit

Broken buying prices per gross ton on cars	
No. 1 hvy. melting	\$ 87.00 to \$ 88.00
No. 2 hvy. melting	85.00 to 86.00
No. 1 dealer bundles	142.00 to 143.00
No. 2 bundles	76.00 to 77.00
No. 1 busheling	140.00 to 141.00
Drop large flashings	85.00 to 86.00
Machine shop turnings	63.00 to 64.00
Mixed borings and turnings	30.00 to 31.00
Shoveling turnings	63.00 to 64.00
Cast iron borings	55.00 to 56.00
Heavy breakable cast	53.00 to 54.00
Mixed cupola cast	70.00 to 71.00
Automobile cast	92.00 to 93.00
Stainless	
18-8 bundles and solids	1160.00 to 1170.00
18-8 turnings	780.00 to 790.00
430 bundles and solids	220.00 to 230.00

Youngstown

Broken buying prices per gross ton on cars	
No. 1 hvy. melting	\$ 104.00 to \$ 105.00
No. 2 hvy. melting	95.00 to 96.00
No. 1 dealer bundles	146.00 to 147.00
No. 2 bundles	56.00 to 57.00
Machine shop turnings	55.00 to 56.00
Shoveling turnings	55.00 to 56.00
Low phos. plate	132.00 to 133.00
Electric furnace bundles	149.00 to 150.00
Cast iron bundles	147.00 to 148.00

Cleveland

Broken buying prices per gross ton on cars	
No. 1 hvy. melting	\$ 98.00 to \$ 99.00
No. 2 hvy. melting	88.00 to 89.00
No. 1 dealer bundles	146.00 to 147.00
No. 2 bundles	56.00 to 57.00
No. 1 busheling	42.00 to 43.00
Machine shop turnings	56.00 to 57.00
Shoveling turnings	58.00 to 59.00
Cast iron borings	55.00 to 56.00
Cast structural plate	
3 ft. and under	128.00 to 129.00
Cast structural plate	
2 ft. and under	115.00 to 116.00
Low phos. punchings plate	181.00 to 182.00
Automobile steel, 2 ft. and under	92.00 to 93.00
No. 1 RR hvy. melting	110.00 to 111.00
Rails, 3 ft. and under	165.00 to 166.00
Rails, 2 ft. and under	169.00 to 170.00
No. 1 machinery cast	91.00 to 92.00
Mixed cast	56.00 to 57.00
Stainless	
18-8 bundles	1165.00 to 1175.00
18-8 turnings	765.00 to 775.00
430 bundles	225.00 to 235.00

Buffalo

Broken buying prices per gross ton on cars	
No. 1 hvy. melting	\$ 96.00 to \$ 97.00
No. 2 hvy. melting	87.00 to 88.00
No. 1 busheling	134.00 to 135.00
No. 1 dealer bundles	134.00 to 135.00
No. 2 bundles	50.00 to 51.00
Machine shop turnings	35.00 to 36.00
Mixed borings and turnings	35.00 to 36.00
Shoveling turnings	39.00 to 40.00
Cast iron borings	44.00 to 45.00
Low phos. plate	126.00 to 127.00
Structural plate	
2 ft. and under	144.00 to 145.00
Rails, 2 ft. and under	147.00 to 148.00
Scrap rails, random length	119.00 to 120.00
No. 1 machinery cast	114.00 to 115.00
No. 1 cupola cast	94.00 to 95.00

St. Louis

No. 1 hvy. melting	\$ 103.00 to \$ 106.00
No. 2 hvy. melting	92.00 to 93.00
No. 1 busheling	146.00 to 147.00
No. 1 dealer bundles	148.00 to 149.00
No. 2 bundles	85.00 to 86.00
Machine shop turnings	49.00 to 50.00
Shoveling turnings	53.00 to 54.00
Cast iron borings	67.00 to 68.00
No. 1 RR hvy. melting	135.00 to 136.00
Rails, random length	131.00 to 132.00
Rails, 3 ft. and under	143.00 to 144.00
Plate and structural plate, 3 ft. and under	135.00 to 136.00
Cupola cast	91.00 to 92.00
Heavy breakable cast	43.00 to 44.00
Stove plate	127.00 to 128.00
Steel car wheels	132.00 to 133.00
Refractory coils	140.00 to 141.00
Unshipped motor blocks	72.00 to 73.00

Birmingham

No. 1 hvy. melting	\$ 109.00 to \$ 110.00
No. 2 hvy. melting	105.00 to 106.00
No. 1 dealer bundles	105.00 to 106.00
No. 2 bundles	89.00 to 90.00
No. 1 busheling	119.00 to 120.00
Shredder scrap	34.00 to 35.00
Machine shop turnings	44.00 to 45.00
Shoveling turnings	59.00 to 60.00
Cast iron borings	38.00 to 39.00
Electric furnace bundles	99.00 to 100.00
Cast structural plate, 2 ft. and under	146.00 to 147.00
Shredder scrap, 4 ft.	32.00 to 33.00
No. 1 RR hvy. melting	132.00 to 133.00
Scrap rails, random length	119.00 to 120.00
Rails, 2 ft. and under	164.00 to 165.00
Angles and I-beams	40.00 to 41.00
No. 1 cupola cast	110.00 to 111.00
Unshipped motor blocks	75.00 to 76.00

Cincinnati

Broken buying prices per gross ton on cars	
No. 1 hvy. melting	\$ 97.00 to \$ 98.00
No. 2 hvy. melting	89.00 to 90.00
No. 1 dealer bundles	134.00 to 135.00
No. 2 bundles	61.00 to 62.00
No. 1 busheling	134.00 to 135.00
Machine shop turnings	44.00 to 45.00
Shoveling turnings	55.00 to 56.00
Cast iron borings	48.00 to 49.00
Low phos. 18 in. and under	143.00 to 144.00
Rails, random length	110.00 to 111.00
Rails, 2 ft. and under	143.00 to 144.00
No. 1 cupola cast	92.00 to 93.00
Heavy breakable cast	54.00 to 55.00
Drop broken cast	98.00 to 99.00

New York

Broken buying prices per gross ton on cars	
No. 1 hvy. melting	\$ 73.00 to \$ 75.00
No. 2 hvy. melting	65.00 to 66.00
No. 2 dealer bundles	35.00 to 37.00
Mixed borings and turnings	10.00 to 11.00
Shoveling turnings	10.00 to 11.00
Clean cast, chem. borings	38.00 to 39.00
No. 1 machinery cast	81.00 to 82.00
Mixed yard cast	54.00 to 55.00
Heavy breakable cast	16.00 to 20.00
Stainless	
18-8 prepared solids	960.00 to 980.00
18-8 turnings	620.00 to 640.00
430 prepared solids	300.00 to 320.00
430 turnings	305.00 to 325.00

Boston

Broken buying prices per gross ton on cars	
No. 1 hvy. melting	\$ 73.00 to \$ 75.00
No. 2 hvy. melting	63.00 to 65.00
No. 1 dealer bundles	118.00 to 120.00
No. 2 bundles	33.00 to 35.00
No. 1 busheling	115.00 to 117.00
Shredder scrap	83.00 to 85.00
Machine shop turnings	20.00 to 22.00
Shoveling turnings	25.00 to 27.00
No. 1 machinery cast	85.00 to 87.00
Mixed cupola cast	44.00 to 46.00
Heavy breakable cast	22.00 to 24.00

San Francisco

No. 1 hvy. melting	\$ 69.00 to \$ 71.00
No. 2 hvy. melting	63.00 to 65.00
No. 1 dealer bundles	61.00 to 63.00
No. 2 dealer bundles	47.00 to 49.00
Machine shop turnings	18.00 to 19.00
Cast iron borings	18.00 to 19.00
No. 1 cupola cast	69.00 to 71.00

Los Angeles

No. 1 hvy. melting	\$ 77.00 to \$ 79.00
No. 2 hvy. melting	71.00 to 73.00
No. 1 dealer bundles	69.00 to 71.00
No. 2 dealer bundles	50.00 to 52.00
Machine shop turnings	19.00 to 21.00
Shoveling turnings	20.00 to 21.00
Cast iron borings	20.00 to 21.00
Electric furnace, 1 ft. and under	
(foundry)	80.00 to 82.00
No. 1 cupola cast	84.00 to 86.00

Seattle

No. 1 hvy. melting	\$ 94.00 to \$ 95.00
No. 2 hvy. melting	84.00 to 85.00
No. 2 bundles	69.00 to 70.00
No. 1 cupola cast	104.00 to 105.00
Mixed yard cast	85.00 to 87.00

Hamilton, Ont.

Broken buying prices per net ton on cars	
No. 1 hvy. melting	\$ 110.00
No. 2 hvy. melting, cut 2 ft. and under	97.00
No. 1 dealer bundles	131.00
No. 2 bundles	81.00
Mixed steel scrap	73.00
Bush new fact. prep'd	128.00
Bush new fact. unprep'd	104.00
Machine shop turnings	39.00
Short steel turnings	39.00
Mixed borings and turning	26.00
Cast scrap	97.00

Houston

Broken buying prices per gross ton on cars	
No. 1 hvy. melting	\$ 112.00 to \$ 113.00
No. 2 hvy. melting	103.00 to 104.00
No. 2 bundles	54.00 to 55.00
Machine shop turnings	47.00 to 48.00
Crushed turnings	57.00 to 58.00
Shredder scrap	114.00 to 115.00
Cast structural plate, 2 ft. and under	29.00 to 30.00
Cast structural plate, 3 ft. and under	25.00 to 26.00
Unshipped motor blocks	65.00 to 66.00
Cupola cast	95.00 to 96.00